Gonystylus bancanus

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Gonystylus bancanus (Miq.) Kurz

Taxonomy and nomenclature

Family: Thymelaeaceae

Synonyms: *Gonystylus hackenbergii* Diels; *G. miquelianus* Teysm. & Binn.

Vernacular/common names: ramin (trade name). Indonesia: ramin (general), gaharu buaya (Sumatra, Kalimantan), merang (Kalimantan). Brunei Darussalam: ramin. Malaysia: ramin melawis, melawis, ramin telur (Peninsular), garu buaya (Sarawak). Philippines: lanutan-bagyo, anauan.

Distribution and habitat

Native to Indonesia (western and central Kalimantan, south-eastern Sumatra and Bangka), Malaysia (south-western Peninsular and Sarawak) and Brunei Darussalam. It is a lowland species that is rarely found above 100 m altitude. It grows in freshwater coastal peat-swamp forest, occasionally forming pure stands. Populations and habitats of the species have decreased sharply due to over exploitation and it is categorised as vulnerable on the IUCN red list.

Uses

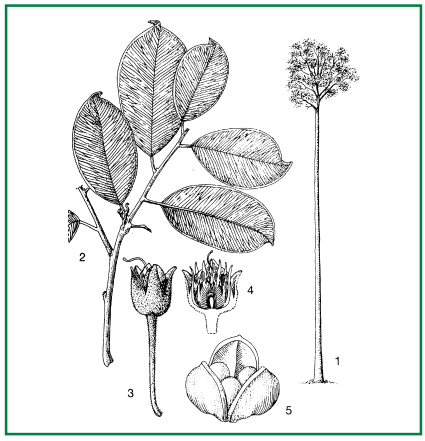
The timber of ramin has white to light yellowish-white heartwood, moderately fine with even texture, and density of 0.54-0.75 g/cm^3 (moisture content 15%). It is very suitable for veneer and plywood, and highly valued for light construction and numerous uses where a clean, whitish timber is wanted. Among other things it is used for decorative cabinets, furniture, interior decoration, wall panelling, light flooring, toys, turnery, broom handles and other non-impact handles, venetian blind slats, dowels, rulers, picture frames, and drawing boards. Uses for general light construction include door and window frames, moulding, skirting, ceilings and partitions. Various other applications comprise planks, barrels, boxes and shipboards.

Botanical description

Tree up to 40-45 m tall with straight and cylindrical bole, branchless up to 21 m. Stem diameter at breast height up to 120 cm. Observations under natural conditions in Kapuas, Central Kalimantan, indicated that *G. bancanus* together with bintangur *(Calophyllum kunstlerii*), jangkang (*Xylopia malacensis*), pisang-pisang (*Mezzetia parvifolia*), and meranti bunga (*Shorea pauciflora*) belong to the top layer of the vegetation with tree heights of about 33 m.

The tree is sometimes slightly fluted at the base, with many knee-roots (pneumatophores). Bark surface is often cracked and shows greyish to red brown colour. Inner bark is yellow and fibrous, sapwood pale cream or white.

Leaves elliptical, oblong-oblanceolate or obovate, 4-14.5 cm x 2-7 cm, broadly cuneate to rounded at the base, suddenly narrowing into a point; petiole 8-18 mm. Inflorescence up to 9 cm long with short, adpressed hairs. Flowers with 8-14 mm long pedicels and 13-20, narrowly lanceolate, glabrous petals.



1, Tree habit; 2, sterile twig; 3, flower; 4, sectioned flower; 5, dehisced fruit with three seeds. (Soerianegara and Lemmens, 1994)

Fruit and seed description

Fruit: the fruit is a capsule, up to 4.5 cm long, with 3-4 valves, minutely rough but not rugose. There are 1-3 seeds per fruit.

Seeds: compressed ovoid, black, 28 x 22 x 6 mm. There are 250-300 seeds/kg.

Flowering and fruiting habit

Under natural conditions, *G. bancanus* appears to have irregular flowering and fruiting habits, i.e. the month of flowering differs and it does not flower every year. In western Kalimantan, it has been reported flowering in August-October and in central Kalimantan in April-May. As it has not been widely cultivated, the age when it begins to flower and set seed is not well known. Also, the type of pollinator is not known. Observations in Kapuas and Kotawaringin Barat (both located in central Kalimantan) as well as in Indragiri Hilir (Riau, Sumatra) showed that 8-year-old trees had not started flowering.

Harvest

When ripe, the fruits open and release the seeds. The freshly fallen seeds are collected from the ground. As access to the swamp forest where ramin grows is often very difficult, seed collection is generally carried out only around log slide tracks.

Processing and handling

The freshly collected seeds have a moisture content of about 40-45%, and during transportation from collection sites, the seeds have to be protected from excessive loss of moisture, e.g. by placing them under shade in moist gunny sacks. At the processing site, the seeds are washed and air-dried on the surface.

Storage and viability

The seeds are desiccation intolerant and must be stored at high moisture content. They can be stored temporarily with moist sawdust in sealed polyethylene bags in an air-conditioned room (18°C). With this method, viability can be kept above 80% for two weeks. After longer periods of storage, the seeds begin to germinate.

Dormancy and pretreatment

The seeds have no dormancy, but it is recommended to soak them in water for 24 hours prior to sowing in order to enhance germination.

Sowing and germination

The seeds are sown in sand or a mixture of sawdust and soil (2:1) in shady conditions and the seedbed should be covered with transparent material (e.g. plastic) to avoid excessive moisture loss.

Germination is hypogeal. The radicle begins to emerge after about 5 days, and nursery germination is completed after about 30 days.

The germinated seeds are then transferred to containers with peat or peat + charcoal powder as growing medium. In the nursery the seedlings should be placed under shade. After 8-11 months, the seedlings are about 20 cm tall and ready for planting.

Phytosanitary problems

The seeds can be predated by rats during germination in the nursery. Adequate protective facilities are needed to avoid attack during germination.

Selected readings

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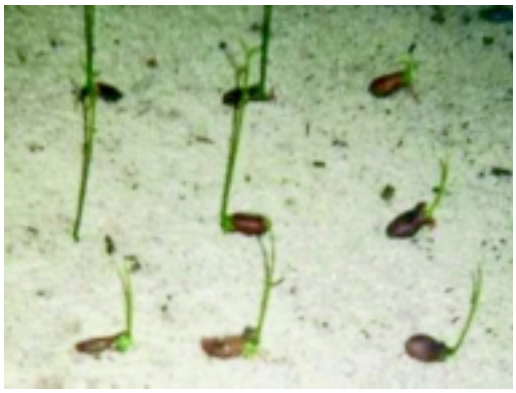

Germinating seeds of *Gonystylus bancanus*. Photo: Hero Dien P.Kartiko.

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